Mescoscopic Toolbox for Biophotonics

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I will outline the "spec's" of our Biophotonics Workstation that we have developed in PPO at DTU Fotonik that utilizes high-speed spatial light modulation to generate a plurality of independently reconfigurable optical traps making real-time laser manipulation of biological or micro-fabricated structures possible with the use of a simple joystick. The fabrication of microstructures with nanometer-sized features, for example a nano-needle, coupled with the real-time user-interactive optical control allows a user to "robotically" actuate appended nanostructures depending on their intended function. These micro-platforms carrying nanotools are seen to have potential uses in a variety of micro-biological experiments. Optically actuated nano-needles may be functionalized or directly used to perforate targeted cells at specific locations or force the complete separation of dividing cells, among other functions that can be very useful for the group of microbiologists.

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